V-ABCD is a regular square pyramid. Find numerical answers.
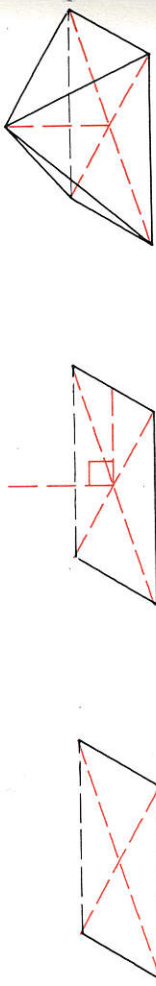

2. $OM = $?
3. $l = $?
4. Area of $\triangle VBC = $?
5. L.A. = ?
6. Volume = ?
7. $VC = $?

All edges of regular pyramid V-XYZ are 6 cm long. Find numerical answers.

8. $XM = $?
9. $XO = $?
10. $h = $?
11. Base area = ?
12. Volume = ?
13. Slant height = ?

Written Exercises

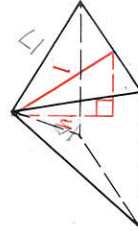You can use the following three steps to sketch a square pyramid.

(1) Draw a parallelogram for the base and sketch diagonals.

(2) Draw a vertical line segment from the point where the diagonals intersect.

(3) Join the vertex to the base vertices.

Sketch each pyramid. Then find its lateral area.

A 1. A regular square pyramid with base edge 1.5 and slant height 9
2. A regular triangular pyramid with base edge 4 and slant height 6
3. A regular square pyramid with base edge 12 and lateral edge 10
4. A regular hexagonal pyramid with base edge 10 and lateral edge 13

Copy and complete the table below for the regular square pyramid shown.

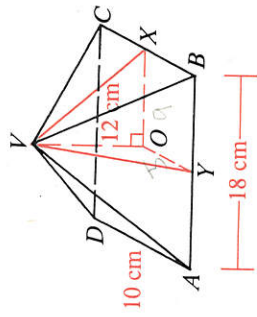|	5.	6.	7.	8.	9.	10.
height, h	4	12	24	?	?	15
slant height, l	5	13	?	12	5	?
base edge	?	?	14	?	8	?
lateral edge	?	?	?	15	?	17

For Exercises 11–14 sketch each square pyramid described. Then find its lateral area, total area, and volume.

11. base edge = 6, height = 4
12. base edge = 16, slant height = 10
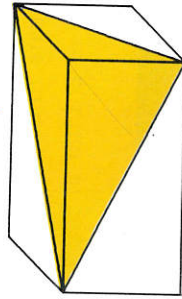13. base edge = 16, lateral edge = 17
14. height = 12, slant height = 13

B 15. *V-ABCD* is a pyramid with a rectangular base 18 cm long and 10 cm wide. *O* is the center of the rectangle. The height, *VO*, of the pyramid is 12 cm.
 a. Find *VX* and *VY*.
 b. Find the lateral area of the pyramid. (Why can't you use the formula L.A. $= \frac{1}{2}pl$?)

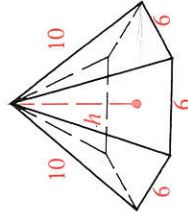16. A pyramid and a prism both have height 8.2 cm and congruent hexagonal bases with area 22.3 cm². Give the ratio of the volumes. (You do not *need* to calculate their volumes.)

17. The shaded pyramid is cut from a rectangular solid. How does the volume of the pyramid compare with the volume of the rectangular solid?
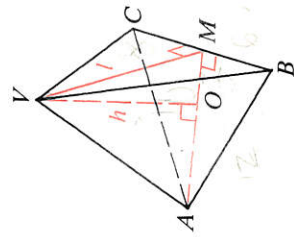

Ex. 17

18. Find the height and the volume of a regular hexagonal pyramid with lateral edges 10 units and base edges 6 units. (*Hint:* The diagonals of the base form six equilateral triangles.)

Ex. 18

For Exercises 19–25 refer to the regular triangular pyramid shown below.

19. If $AM = 9$ and $VA = 10$, find h and l.
20. a. If $BC = 6$, find AM and AO.
 b. If $BC = 6$ and $VA = 4$, find h and l.
21. a. If $h = 4$ and $l = 5$, find OM, OA, and BC.
 b. Find the lateral area and the volume.
22. If $VA = 5$ and $h = 3$, find the slant height, the lateral area, and the volume.
23. If $AB = 12$ and $VA = 10$, find the lateral area and the volume.
24. a. If all edges of the pyramid are 6, show that $h = \sqrt{24}$, or $2\sqrt{6}$.
 b. Find the total area and the volume.

C 25. Suppose all edges of the pyramid shown above are e units long. Find the volume in terms of e.

Exs. 19–25